Report for the Wumpus–World Project:
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Taha Zaamoun's Take

The key predicates are:

-**room**(X,Y)
-**breeze**(room(X,Y)):
-**pit**(room(X,Y)):
-**wumpus**(room(X,Y)):
-**stench**(room(X,Y)):
-**gold**(room(X,Y)):
-**adjacentTo**(room(X,Y)):
-**safe**(room(X,Y)):
-**grabGold**(room(X,Y)):
-**shootWumpus**(room(X,Y)):
-**location**(room(X,Y)):
-**glitter**(room(X,Y)):

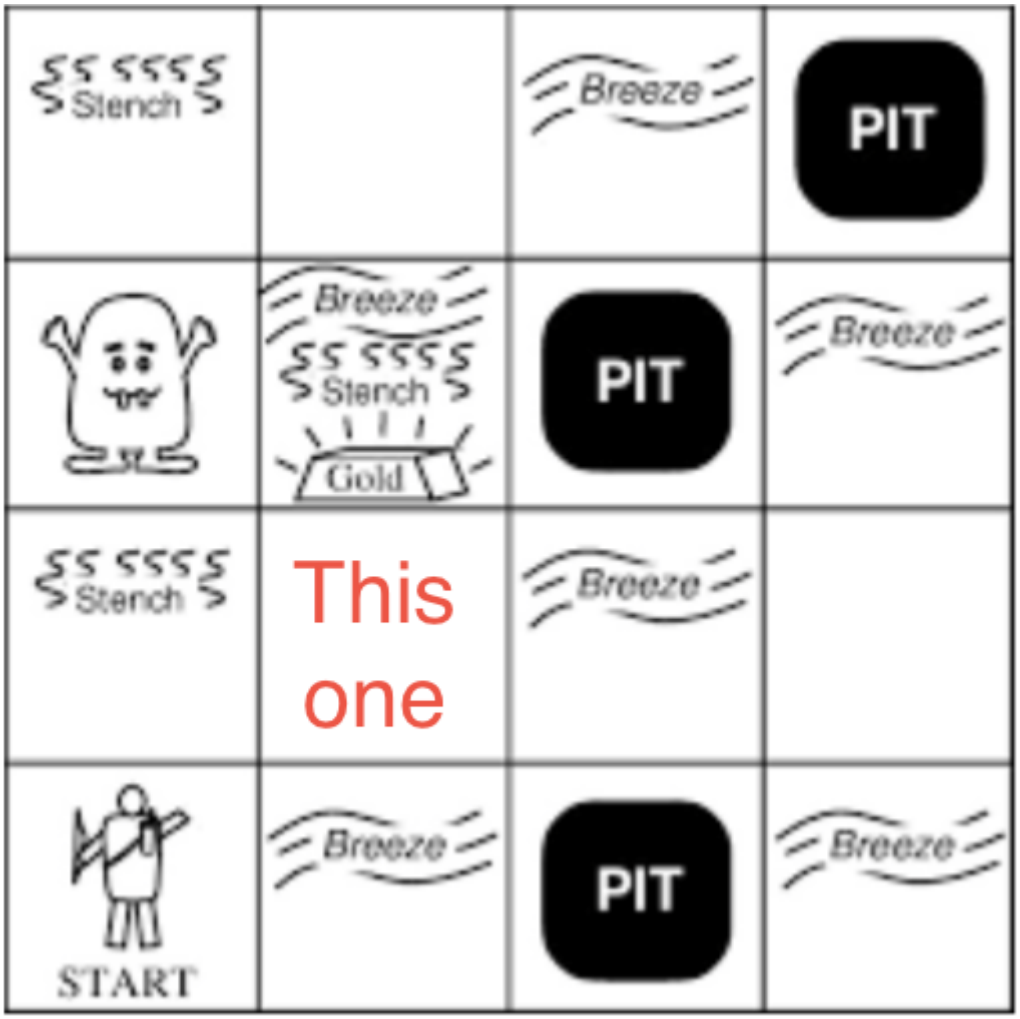
Meaning of the variables:

-**X, A, C, E, G, I** and **W** are variables that signify the **X-coordinate** of the rooms in the grid as in the **horizontal lines** of the 4*4 grid.
-**Y, B, D, F, H, J** and **Z** are variables which signify the **Y-coordinate** of the rooms in the **vertical lines** of the 4*4 grid.

Limitations of your solution:

-The main limitations of our solution is that it might show as we run the pit(room(X,Y)) on a room that does not include a pit but has 4 adjacent breeze rooms, it returns true, implying that there is a pit in the discussed room.

Here, I am displaying an example of the cell I was discussing in the above–paragraph:



Configuration #	Accuracy rate of detecting cells containing pits	Accuracy rate of detecting Safe cells	Accuracy of detecting Gold
1	50%(3 out of 6)	100%	100%(1 out of 1)
2	83%(5 out of 6)	100%	100%(1 out of 1)
3	67%(4 out of 6)	100%	100%(1 out of 1)

From the table, I computed:

-The average accuracy of detecting pits is: 67%
-The average accuracy of detecting safe cells is: 100%
-The average accuracy of detecting Gold is:100%

The potential solutions and remedies that we could perhaps introduce to remedy this problem Is looking for the adjacency of two neighbours in all directions in order to eliminate all doubt.

Snapshots of work:

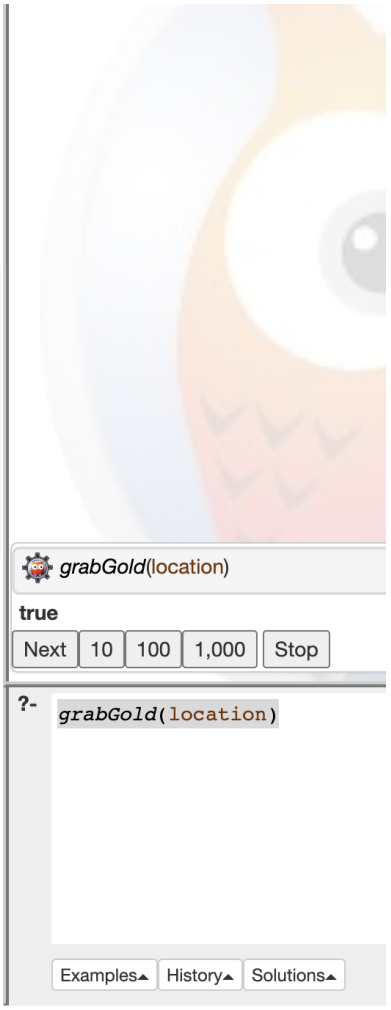
```
%Gold Location
glitter(room(2,3)).

%Existance of a pit in a location
pit(room(A,B)) :-
    room(A,B),
    room(C,D),
    room(E,F),
    room(G,H),
    room(I,J),
    breeze(room(C,D)),
    breeze(room(E,F)),
    breeze(room(G,H)),
    breeze(room(I,J)),
    adjacentTo(room(E,F),room(A,B)),
    adjacentTo(room(C,D),room(A,B)),
    adjacentTo(room(G,H),room(A,B)),
    adjacentTo(room(I,J),room(A,B)),
    not(safe(room(A,B))).


%Is there Gold in a location
gold(room(X,Y)) :-
    room(X,Y),
    location(room(X,Y)),
    glitter(room(X,Y)).

%Can You grab Gold
grabGold(location):-
    gold(room(W,Z)),
    location(room(X,Y)),
    X =:= W,
    Y =:= Z.

```




```
location(room(2,3)).

%stench Locations
stench(room(1,2)).
stench(room(1,4)).
stench(room(2,3)).

%breeze Locations
breeze(room(2,1)).
breeze(room(4,1)).
breeze(room(3,2)).
breeze(room(3,4)).
breeze(room(2,3)).
breeze(room(4,3)).

safe(room(X,Y)):-
    room(X,Y),
    room(W,Z),
    room(Q,S),
    not(pit(room(W,Z))),
    not(wumpus(room(Q,S))).

```